Seek

Volume 4
Issue 1 *Winter*

Article 10

May 2016

# Solid Investment

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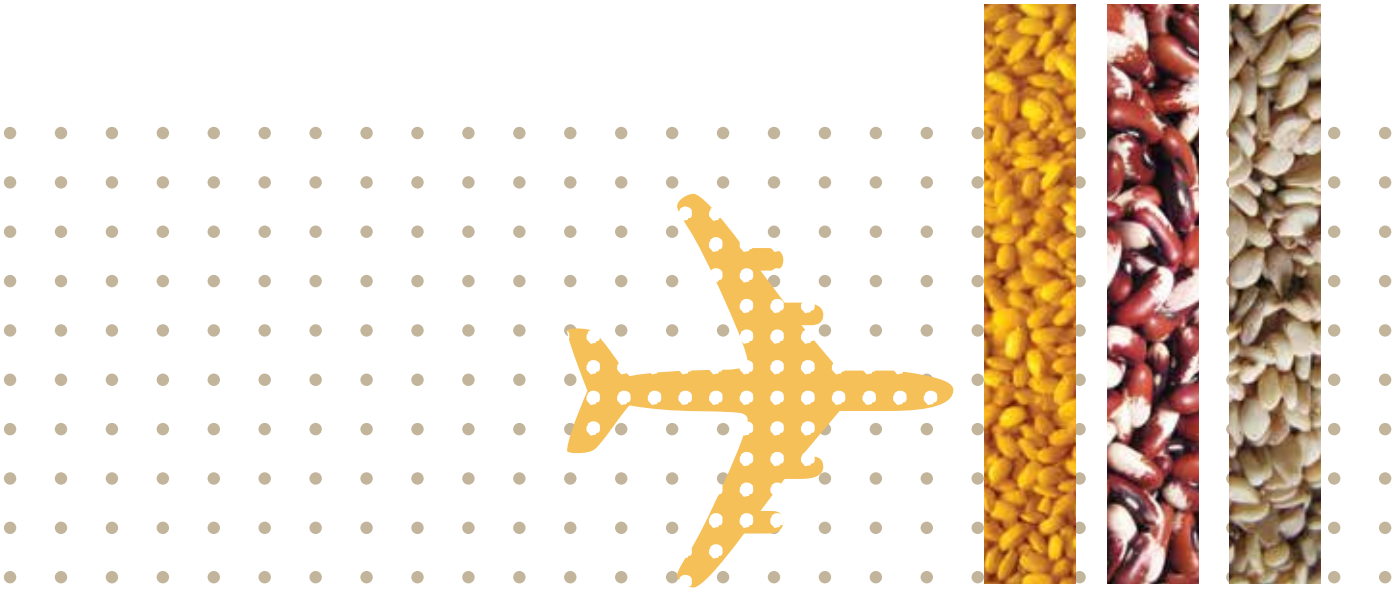
University-industry collaboration to improve performance of bulk solids



Think about almost any product you used this morning — your toothbrush, your multivitamin, your bowl of corn flakes. They started out as plastic pellets, powdered pharmaceuticals and grain.

Known as bulk solids, these materials make up more than 80 percent of items transported and handled around the world. Although bulk solids have been studied for more than 50 years, how they transport and how they behave during processing require continued investigation.

Kingsly Ambrose is an assistant professor of grain science and industry at Kansas State University who studies bulk solids. He explains it like this: Take a bag of sugar out of the cupboard and pour it into a measuring cup. Sometimes it will pour smoothly, and other times you'll get a lump that inhibits this process.

Now imagine that problem on the scale of billions of tons, and these are the challenges that manufacturers deal with — manufacturers like Coperion K-Tron. The company makes the feeders and pneumatic conveying components, supervisory controls and digital scales for the plastics, chemical, food, pharmaceutical industries and others.

"Industry leaders all over the country recognize that formal education and research in this area are lacking," said Todd Smith, the company's vice president.

Smith is also general manager of Coperion K-Tron Salina in Salina, Kan., future site of a $3.5 million, 13,000-square-foot Kansas State University Bulk Solids Innovation Center. Very few bulk solids research centers exist in the world, Smith said, and this would be the only university-level research center for bulk solids in the United States.

Verna Fitzsimmons, CEO and dean of Kansas State University Salina, said that several things intersect to make the campus an ideal host. Salina is home to a number of second-tier manufacturers. The Salina campus is home to an engineering technology program suited to work with the challenges of bulk solids. The center will provide career-driven opportunities for students to experience applied research.

"It's another mechanism to connect industry with education," Fitzsimmons said. "Higher education doesn't just have to be sitting in the classroom. We'll be demonstrating what higher education can be."

The university will be the key tenant in the center, and two Salina companies, Coperion K-Tron and Vortex Valves, will be initial anchor tenants. Primary partners are Kansas State University, the Salina Area Chamber of Commerce, Salina Economic Development Corporation and several private companies.

The project will use both public and private sector resources, including a $1 million-plus grant through the Economic Development Assistance Programs of the U.S Department of Commerce's Economic Development Administration.

Support is forthcoming from the Kansas Department of Commerce, the Salina Economic Development Incentives Council, Kansas State University and the private sector facility users.

*By Erinn Barcomb-Peterson, Communications and Marketing*